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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/822,374

04/12/2004

Shuichi Ohkubo

NEC WNZ-2665

2825

27667 7590 02/18/2009  
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EXAMINER

DANIELSEN, NATHAN ANDREW

ART UNIT

PAPER NUMBER

2627

MAIL DATE

DELIVERY MODE

02/18/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/822,374	<b>Applicant(s)</b> OHKUBO ET AL.	
	<b>Examiner</b> Nathan Danielsen	<b>Art Unit</b> 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 12-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/08/08 &amp; 02/05/09</u> .                                 | 6) <input type="checkbox"/> Other: _____                          |

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### **DETAILED ACTION**

1. Claims 12-17 are pending. Claim 2 was canceled in applicant's amendment filed 17 May 2007. Claims 1 and 3-11 were canceled and claims 12-17 were added in applicant's amendment filed 24 November 2008.

### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 24 November 2008 has been entered.

### ***Claim Objections***

3. Claims 12-15 are objected to because "the said" should be changed to either --the-- or --said--. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 12-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 12 recites the limitations "the predetermined initial equalization coefficient", "the Viterbi decoder", and "the least square technique". Claim 14 recites the limitation "the least square technique". There is insufficient antecedent basis for these limitations in the claims. Claims 13, and 15-17 are rejected as being dependent on an indefinite claim.

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***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara (US Patent Application Publication 2003/0002407), in view of Behrens et al (US Patent 5,892,632).

Regarding claims 12, 14, 16, and 17, Fujiwara discloses reproduced signal equalizing methods (and associated apparatuses) for optical information media in which reproduced signals obtained by irradiating laser light to an optical information medium are equalized so as to bring a waveform thereof close to a waveform having predetermined characteristics, the method comprising the steps of:

sampling reproduced signals in a predetermined cycle (§§ 59-61);

equalizing the said sampled waveform with the predetermined initial equalization coefficient (§§ 72-74);

obtaining a provisional binarized data by inputting the said equalized waveform thereof to the Viterbi decoder and demodulating the said equalized waveform by the Viterbi decoder (§ 78);

generating a target waveform from the provisional binarized data and a predetermined partial response waveform (§ 79);

calculating an equalization coefficient for producing a smallest difference between the said target waveform and an equalized waveform by the least square technique (§§ 72 and 86-93); and

equalizing reproduced signals by using the calculated equalization coefficient (§§ 86-93).

However, Fujiwara fails to disclose where the step of calculating an equalization coefficient is carried out using a matrix calculation.

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In the same field of endeavor, Behrens discloses where the step of calculating an equalization coefficient is carried out using a matrix calculation (col. 7, line 12 through col. 8, line 9, col. 18, lines 5-13, col. 14, line 40 through col. 16, line 51, and col. 19, line 29 through col. 23, line 15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the methods and apparatuses of Fujiwara with the mathematical computations of Behrens, for the purpose of increasing the calculation speed and power efficiency of a sampled-amplitude read channel (col. 4, lines 41-58).

Regarding claims 13 and 15, Fujiwara, in view of Behrens, discloses everything claimed, as applied to claims 12 and 14, respectively. Although Fujiwara, in view of Behrens, fails to disclose where 3000 or more sampled waveforms are used in the said matrix calculation, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use 3000 or more sampled waveforms in said matrix calculation, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Therefore, making use of routine experimentation in combination with the constant advancements in IC and microprocessor technologies and the disclosure of Behrens, one of ordinary skill in the art at the time the instant invention was made would have been able to determine an appropriate number of samples to use in the matrix equations of Behrens to calculate equalization filter coefficients while reducing the equalization error when equalizing reproduced signals (col. 4, lines 41-58). See also *In re Aller*, 105 USPQ 233.

9. Alternatively, claims 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara, in view of Behrens, and further in view of Matsushita et al (Japanese Patent Application Publication JP 08-037478; hereinafter Matsushita).

Regarding claims 13 and 15, Fujiwara, in view of Behrens, discloses everything claimed, as applied to claims 12 and 14, respectively. However, Fujiwara, in view of Behrens, fails to explicitly disclose where 3000 or more sampled waveforms are used in the said matrix calculation.

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In the same field of endeavor, Matsushita discloses where 3000 or more sampled waveforms are used in the said matrix calculation (¶s 55 and 56).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the methods and apparatuses of Fujiwara, as modified by Behrens, with that of Matsushita, for the purpose of setting an equalizing characteristic in a short time with high accuracy (abstract).

### ***Response to Arguments***

10. Applicant's arguments filed 24 November 2008 have been fully considered but they are not persuasive.

a. Regarding applicant's argument that the cited documents (including at least Fujiwara and Behrens) fail to teach or disclose applicant's claimed invention, the examiner disagrees. As shown in the preceding rejections, the combination of Fujiwara and Behrens teaches applicant's claimed invention. Therefore, this rejection is still deemed proper and is hereby maintained.

### ***Closing Remarks/Comments***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Danielsen whose telephone number is (571)272-4248. The examiner can normally be reached on Monday-Friday, 9:00 AM - 5:00 PM Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A.L. Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jorge L Ortiz-Criado/  
Primary Examiner, Art Unit 2627

Nathan Daniels  
02/11/2009